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# Global environmental studies, the precautionary principle and *homo respondens*

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## Introduction

It is time, urges American engineer George Bugliarello, for the humanities, science and engineering to come together urgently on issues of the environment. Bugliarello calls for a new trivium to “provide every educated person with a basic understanding of the endeavors and instruments that help us address our world — the humanities (in the noblest sense of the word), to civilise, science to understand nature and engineering, broadly defined, to encompass the kindred activities that modify nature” (Bugliarello 2002). Their interaction, he suggests, “shapes a new morality, which cannot be defined as the domain of a single discipline or set of disciplines” (Ibid). The solution to the world’s environmental problems, by extension, rests on the understanding and application of this new morality.

The above prompts a number of questions. What collaborations are possible between science, technology and other disciplines for the purpose of discussing environmental problems within the growing field of global environmental studies? How might the humanities civilise those who endeavor to understand and modify nature, lest they should “put at risk the very survival of our species, now propelled at breakneck speed toward an unfathomable future by scientific and technological advances” (Ibid)? What is the morality that Bugliarello speaks of and on what should it be founded? The following uses an interpretation of Hans Jonas’ philosophical thought to explore these questions, starting with an explanation of the collaborative relationship between philosophy, the social sciences, and the natural sciences in the field of global environmental studies.

## Civilising science and technology

I begin by asking the following question: what does it mean to talk of civilising science and technology? What, for that matter, does it mean to talk of civili-

sation?

The word ‘civilisation’ denotes a state of or a process towards being civilised. ‘To civilise’ is ‘to make something civil’. Lexicographically, the word ‘civil’ (Latin *civilis*; Greek *politikos*) has three cardinal meanings. First, ‘civil’ implies ‘of or concerning a citizen’. In this sense, it is the opposite of ‘natural’. For example, the ancient Roman jurists contrasted *ius civile*, the body of civil laws enforceable on Roman citizens, with *ius naturale*, the natural laws dictated by human nature.<sup>1</sup> Second, it means ‘polite or refined’, the antonym of which is ‘uncivil’ (ie. ‘wild or rough’). Finally, it denotes ‘civilian’, the opposites of which are ‘military’ and ‘ecclesiastical’.

These three meanings, while different in key aspects, essentially derive from the fundamental meaning of ‘civil’ defined by Aristotle in *Politics* as follows:

And why man is a political animal [*zōon politikon*] in a greater measure than any bee or any gregarious animal is clear. For nature, as we declare, does nothing without purpose; and man alone of the animals possesses speech [*echei logon*]. The mere voice [*phônē*], it is true, can indicate pain and pleasure, and, therefore, is possessed by the other animals as well..., but speech [*logos*] is designed to indicate the advantageous and the harmful, and therefore also the right and the wrong; for it is the special property of man in distinction from the other animals that he alone has perception of good and bad and right and wrong and the other moral qualities, and it is partnership [*koinōnia*] in these things that makes a household and a city-state [*polis*]. (Aristotle 1990: 11)

This citation contains two essential points in my view. First, that among ‘political’ (ie. social) living things, human beings are unique in having a political character based upon the possession of speech (*logon echein*). Second, that the speech (*logos*) of human beings is defined not by the expression of subjective sensations such as pain and pleasure but, instead, by the discussion of public subjects that all people share, such as benefit and harm, good and bad, right and wrong. In short, the essence of speech is that it is a dialogue with others: the possession of speech — as Martin Heidegger comments with respect to the above quotation from *Politics* — implies “being of speaking to each other [*Miteinandersprechendsein*] by way of communication, refutation, and confrontation” (Heidegger 2002: 47, my translation).

Aristotle’s explanation introduces the fundamental meaning of ‘civil’ (*politikos*; *civilis*) as the mutual discussion of the common important issues of one’s own society (*polis*; *civitas*). All three of the above meanings of ‘civil’ (of or concerning

a citizen, polite or refined, and civilian) may be traced back to this fundamental definition. The first duty of citizens is to be civil, ie. to mutually discuss their social matters. All citizens should be polite and refined, in order that their discussions are smooth and fruitful. Finally, all citizens participating in a discussion should be civilians: they should avoid both military and ecclesiastical occupations on the grounds that the freedom of speech and debate must be defended from the intrusions of violence or religion.

Let us content ourselves with this too brief consideration of the word 'civil' and return to the main question of this section. What does 'the civilisation of science and technology' mean? If 'to civilise' is to make something civil and being 'civil' implies the mutual discussion of the common important issues pertaining to one's own society, the civilisation of science and technology defines the state in which science and technology engage in discussion with other disciplines, such as the humanities and social sciences, on issues of importance to society. Issues, for instance, such as the emerging global environmental issues and humanity's common need to keep society safe from potential environmental catastrophes.

## **The triadic structure of global environmental studies**

The problem remains as to *how* science and technology can collaborate with the humanities and social sciences to contribute to the discussion on the security of human society. An instructive paradigm concerning this problem can be found in Hans Jonas' *The Imperative of Responsibility* (1984), one of the classics of environmental ethics in the 20th century.<sup>2</sup> The second chapter of this work outlines a new paradigm that brings together 'ideal knowledge' (the humanities and social sciences) and 'real knowledge' (the natural sciences) for the establishment of the 'ethics of the future'. Jonas' description of this paradigm is far from precise. With additional explanation and reformulation, however, his ideas apply readily to the new interdisciplinary field of global environmental studies, upon which the future of human society may depend.

Jonas may be particularly helpful in elucidating that which I term the 'triadic structure of global environmental studies'. This structure comprises of three elements, summarised as follows:

- (a) *The study of moral principles* (philosophy and ethics). This aims to create and provide the theoretical justification for new moral principles which have hitherto not existed.
- (b) *The study of the practical application of moral principles*. This explores the application of moral principles in politics, economics, sociology and

technology, among others. It considers how to apply them to public policy with the aim of bringing them to fruition.

- (c) *The study of hypothetical predictions.* This study — termed “comparative futurology” by Jonas — involves the scientific simulation of possible situations in the future. Natural sciences (mathematics, statistics, physics, chemistry, biology, ecology, medicine, earth science, meteorology, hydrology, etc.) and also researches in environmental history (history, archeology, paleoclimatology, paleobiology, anthropology, folklore, etc.) fall under the study of hypothetical predictions. This is because simulations of the future depend upon accurate simulations of past phenomena, formed on the basis of archeological, historical and anthropological data amassed by research in environmental history.

There are close relationships between these three studies that merit note. First, the study of moral principles is related to the study of the practical application of moral principles through the study of hypothetical predictions. This is because the policies chosen for the most appropriate political application of certain moral principles are dependent on the expected future results based on the present potential enforcement of each policy, which is demonstrated by scientific simulation (cf. Jonas 1984: 26). It follows that the study of the practical application of moral principles has much to do with the study of hypothetical predictions because, as stated above, the most appropriate policy to be selected in a given context hinges upon its future results, which are estimated by scientific simulation as accurately as possible. Finally, the close connection between the study of hypothetical predictions and that of moral principles is such that new moral principles cannot be found without forecasting the future. Jonas terms this phenomenon a “heuristics of fear” and explains its origins as follows:

... just as we should not know the value of truth without being aware of lies, nor of freedom without the lack of it, and so forth — so also, in our search after an ethics of responsibility for distant contingencies, it is an anticipated *distortion* of man that helps us to detect that in the normative conception of man which is to be preserved from it. And we need the *threat* to the image of man — and rather specific kinds of threat — to assure ourselves of his true image by the very recoil from these threats. As long as the danger is unknown, we do not know what to preserve and why. (Jonas 1984: 26–27)

As Jonas elaborates: “we know the thing at stake only when we know that it is at

stake” (Jonas 1984: 27). The creatively imagined *malum* or harm “has to take over the role of the experienced *malum*” (Ibid) whenever “that which is to be feared has never yet happened and has perhaps no analogies in past or present experience” (Ibid).

Jonas’ heuristics of fear thus defines the relationship between the study of hypothetical predictions and that of moral principles. First, the study of hypothetical predictions discovers what threats the future may hold. Next, the study of moral principles creates a new ethical theory that serves to avert the future scenario that is feared.

### **The principle of prevention, precaution or both?**

So far, we have seen how science and technology can collaborate with other disciplines to contribute to the discussion on the protection of human society. What should be the first principle of the protection we seek?

Comparing contemporary society with the ancient *polis*, Jonas has this to say about the world in which we live today:

... the boundary between “city” [*polis*] and “nature” has been obliterated: the city of men, once an enclave in the nonhuman world, spreads over the whole of terrestrial nature and usurps its place... the natural is swallowed up in the sphere of the artificial... Once it could be said *Fiat justitia, pereat mundus*, “Let justice be done, and may the world perish” — where “world”, of course, meant the renewable enclave in the imperishable whole. Not even rhetorically can the like be said any more when the perishing of the whole through the doings of man... has become a real possibility. Issues never legislated come into the purview of the laws which the total city must give itself so that there will be a world for the generations of man to come. (Jonas 1984: 10)

In the above citation, Jonas insists there must be ‘a world for the generations of man to come’. I interpret this to mean that, in order to maintain human security, we must not stop at the protection of only the present members of human society. Rather we must extend protection to future generations, without which human society will disappear, and to nature, which has been absorbed by its opposite, the *polis*.

What, then, should be the first principle governing the protection of human society, future generations and nature? Jonas states that “the prophecy of doom is to be given greater heed than the prophecy of bliss” (Jonas 1984: 31). Frank

Niggenmeier, among others, comments that Jonas' proposition is archetypal of that which we today call the precautionary principle — a principle that “aims at the orderly management of risks which cannot be elucidated completely by science and demands to interfere so that what is worth protecting, such as human health, may not be endangered by the possible occurrence of the unclear risk” (Niggenmeier 2002: 183, my translation).

Niggenmeier's definition of the precautionary principle may be understood in two ways, both as a 'principle of prevention' and as a 'principle of precaution'. These two interpretations are contrary, especially when they explicate the meaning of 'the possible occurrence of the unclear risk'. Olivier Godard explains this as follows: “Precaution concerns potential or hypothetical hazards (uncertainty) whereas prevention deals with known and recognised risks” (Godard 2005: 5 ).

Godard redefines the principle of prevention as the principle of abstention and describes it as comprising three ideas: 1 ) the concept of zero damage as a general norm to protect the public from any possible harm; 2 ) the focus of attention on the worst-case scenario against which we should remain alert, regardless of any scientific uncertainty; 3 ) a shift in the burden of proof away from the victim (plaintiff), who need not provide scientific proof of the harmfulness of a given act to the perpetrator (defendant), who must prove his own act to be harmless instead (Godard 2006: 5, my paraphrase and translation). Godard grumbles that the followers of the principle of prevention (or abstention) attach considerable importance to the worst-case scenario in projections of the future and deem such scenario “certain in determining the prevention which should be started” (Godard 2006: 3, my translation). He identifies this stance as one of pessimism (*castrophisme*) and blames Jonas, “the father of the modern pessimistic philosophy” (Ibid, my translation), for this gloomy attitude.

In contrast to the principle of prevention, the principle of precaution, according to Godard's formulation, has the following characteristics: a) it does not require the zero damage [norm], nor does it institute [the imposition of] responsibility for consequence; the fact that some damages occur does not imply that precautionary measures [against the damages] are maladapted; b) it does not focus upon the worst-case scenarios that are associated with each undertaken action but it considers all the scenarios that describe the possible effects of the above actions; c) it does not demand the conversion of the burden of proof but distances itself from the idea that proof should be charged or discharged or that it is important to prove the damage or its absence (Godard 2006: 5, my translation and paraphrase). A strong believer in the principle of precaution defined in this way, Godard clearly considers himself Jonas' opponent.

Godard's argument — that the principles of prevention and precaution are

mutually exclusive — is not uncommon. I nevertheless contend that there is nothing either/or about the principle of prevention and precaution. Rather, one complements the other.

Let us begin by considering the principle of prevention. This principle is arguably impracticable. However hard we try, we can never completely satisfy its zero-risk norm: we are prevented from doing so by the inevitable fallibility of the human condition, chronicled by human history. However, we must not assume instead that the principle of precaution alone is sufficient to ensure social safety. This is because this principle does not offer theoretical justification as to *why* we must protect present and future human society and nature.

Jonas' insistence that "metaphysics must underpin ethics" (Jonas 1984: x) provides the justification lacking if the principle of precaution is pursued in isolation. Jonas' proposition is the very *raison d'être* of the principle of prevention, which differs, ultimately, from that of precaution in terms of its metaphysical background. At the same time, however, Jonas reaffirms his belief that we must "give the bad prognosis precedence over the good" (Jonas 1984: 37). "Never must the existence or the essence of man as a whole be made a stake in the hazards of action" (Ibid), he warns, citing "the imperative that there be a mankind" (Jonas 1984: 43) as his reason why it must not. If so, then what is the basis of this imperative? In response to this *question finale*, Jonas replies that "only the idea of Man, by telling us *why* there should be men, tells us also *how* they should be" (Ibid). Thus, the fundamental underlying premise of the principle of prevention "does not itself lie *within* ethics as a doctrine of action... but within *metaphysics* as a doctrine of being, of which the idea of Man is a part" (Jonas 1984: 44).

The above suggests that the principles of prevention and precaution should be taken together rather than in isolation, and leaves us with a challenging question: what does "the idea of Man" imply? As long as this concept is not clarified, Jonas' metaphysical justification for the principle of prevention remains in doubt. If "the idea of Man" refers to *Jonas'* ideal of human beings, a question arises as to whether his argument is too dogmatic to merit approval. In concluding, therefore, I would like to consider what Jonas means by the idea of Man.

### **The idea of Man and the responsibility for responsibility: *homo respondens***

At first glance, Jonas' concept of the idea of Man, which "tells us how they [men] should be", appears to refer to some definite model of human beings. Yet Jonas himself states that the question of "*what* man ought to be" is an "ever-open question", the answer to which is "changeable" (Jonas 1984: 139). Jonas elaborates:



But what now matters most is not to perpetuate or bring about a particular image of man, but first of all to keep open the horizon of *possibilities* which, in the case of man, is given with the existence of the species as such and... will always offer a new chance to the human essence. (Jonas 1984: 139–140)

This citation indicates that Jonas does not intend to advocate any specific exemplar of human beings; to the contrary, he argues that we must all continuously expand “the horizon of possibilities” that constantly enables us to realise our ideals as human beings and maintain the conditions that make it possible to realise the “human essence”. Maintaining “the horizon of possibilities” is the cardinal responsibility of human beings, Jonas suggests. To fulfil this responsibility, the present generation must ensure that all future generations have the same chance it had to experience responsibility.<sup>3</sup> The responsibility of human beings is, in essence, *responsibility for responsibility*. Jonas explains:

It is the ever-transcendent *possibility*, obligatory in itself, which must be kept open by the continued existence [of mankind]. To preserve this possibility is a cosmic responsibility — hence the duty for mankind to exist. Put epigrammatically: the possibility of there being responsibility in the world, which is bound to the existence of men, is of all objects of responsibility the first. (Jonas 1984: 99)

Accepting for the moment that Jonas is right about responsibility, what is the relation between the responsibility of human beings and the idea of Man? Jonas’ description of what the responsibility means to human beings may elucidate this question:

To be *de facto* responsible in some respect for someone at some time... belongs as inseparably to the being of man as his *a priori* capacity for it... and is therefore to be included in his definition, if one is interested in this dubious pursuit (Ibid).

As this citation clarifies, Jonas regards the state of “being responsible” not only *de facto* but also *a priori* as that, in short, which defines the state of being human. I interpret this to mean that humanity is not only ontically (in terms of concrete ways of our being) but also *ontologically* (in terms of the fundamental structure that makes our being possible) responsible: that is, *homo respondens*. Jonas insists that the human ontological feature of *homo respondens* — ie. the structure of our

being that enables us to be responsible — burdens us with the duty that we *ought* to have responsibility (for responsibility). We must realise ontically our own ontological character, in other words, as the following passage suggests:

Man's distinction that he alone can *have* responsibility means also that he *must* have it for others of his like — that is, for such that are themselves potential bearers of responsibility. (Ibid)

The features of *homo respondens* seen in the above can also be found in the following explanation of the idea of Man, which Jonas provides in relation to “the imperative that there be a mankind” (Jonas 1984: 43):

With this imperative we are, strictly speaking, not responsible to the future human individuals but to the *idea* of Man, which is such that it demands the presence of its embodiment in the world. It is, in other words, an *ontological* idea, which does not... guarantee the existence of its subject already with the essence — far from it! — but says that such a presence *ought* to be and to be watched over, thus making it a duty to us who can endanger it. (Ibid, my italics)

In this passage, Jonas states that the idea of Man requires human beings to be “its embodiment in the world”. In other words, the idea of Man makes “the ontological claim” (Jonas 1984: 99) for the “abstract ‘ought’” (Ibid) to be “its executors or guardians” (Ibid) against us, just as *homo respondens* does. The idea of Man and *homo respondens* are the same in that both are human ontological concepts demanding that humanity should be their incarnation.

The above offers an exploration of Jonas’ concept of the idea of Man in an attempt to clarify its meaning. Having suggested that the idea of Man and *homo respondens* are one and the same, we now need to ask the following question: can Jonas’ central thesis — that responsibility is the ontological character of human beings — be justified and, if so, how?

Jonas builds his thesis of responsibility on his unique teleological philosophy of nature, arguing that life is a good in itself and that human responsibility is the highest product of the evolution of life. Jonas’ proposition that human responsibility should be based upon the ontological structure of human beings is persuasive. His attempt to justify the proposition is less persuasive, however, in that the teleology of Jonas’ natural philosophy is not supported by Darwinism. Laying out the ontological foundation of human responsibility is clearly the next step in the enquiry into Jonas’ ethics of the future.

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## Notes

<sup>1</sup> In order to simplify the explanation, I do not refer to *ius gentius* (the law of nations) here.

<sup>2</sup> The influence of Jonas's work upon politicians and environmental activists prompted Wolfgang Müller to claim that "the UN conference for environment and development in Rio de Janeiro 1992 is hardly thinkable without the impulse of Hans Jonas" (Müller 2003: 9, my translation).

<sup>3</sup> "We consult not our successors' *wishes*... but rather the "ought" that stands above both of us. To make it impossible for them to be what they *ought* to be is the true crime... This means, in turn, that it is less the *right* of future men (namely, their right to happiness) than their *duty* over which we have to watch, namely, their duty to be truly human". (Jonas 1984: 41–42)

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